THE SCIENCE NEWS-LETTER

A Weekly Summary of Current Science

EDITED BY WATSON DAVIS

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EDWIN E. SLOSSON, Director
WATSON DAVIS, Managing Editor

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SUPPOSED "MISSING LINK" SAID TO BE SIMIAN

The "missing link" is still missing, and the skull recently discovered in South Africa by Prof. Raymond Dart, of Witwatersrand University, is definitely that of an ape, such as live today, says Sir Arthur Keith, of the Royal College of Surgeons in London, and a recognized authority on prehistoric man, in a letter to "Nature". In expressing this opinion, after seeing casts of the skull, Sir Arthur differs with Prof. Dart, who described it as representing "an extinct race of apes, intermediate between living anthropoids and man".

"This claim is preposterous," says Sir Arthur. "The skull is that of a young anthropoid ape, and showing so many points of affinity with the two living African anthropoids, the gorilla and the chimpanzee, that there cannot be a moment's hesitation in placing the fossil form in this living group. It is true that it shows in the development of its jaws and face a refinement which is not met with in young gorillas and chimpanzees at a corresponding age. In these respects it does show human-like traits. It is true that it is markedly narrow headed while the other African anthropoids are broad-headed, but we find the same kind of difference in human beings of closely allied races. Prof. Dart claimed that the brain showed certain definite human traits. This depends on whether or not he correctly identified the position of a certain fissure of the brain. When we examine the brain cast at the supposed site of the fissure we find only a broken surface where identification becomes a matter of guesswork".

Sir Arthur believes, however, that the skull is prehistoric, and that its owner lived in the Pleistocene period, a million years ago, and that it throws light on the history of the anthropoid apes, but not of man. "Jave man (Pithecanthropus)," he concludes, "still remains the only known link between man and ape, and this extinct type lies on the human side of the gap."

FARMERS OPPOSE TUBERCULIN TEST

Cows as well as monkeys are doing their share in bringing science into the courtroom. The forcible ejection of Dr. Clark H. Hays, chief of the Nebraska state bureau of animal industry, from a farm at Elkhorn, Nebraska, on June 30, has resulted in contributions from farmers in different parts of the state toward a fund to test their rights under the Nebraska law for the eradication of tuberculosis in livestock. The objecting farmer, according to Dr. Hays, refused to allow his stock to be subjected to the tuberculosis test in accord with the state law.

This test consists of injecting an extract of dead tubercle bacilli under the skin of the cow. Fever, swelling, and inflammation at the point of injection constitute a positive test. Cattle with a positive test are condemned and killed.

The slaughter of thousands of cattle each year under the Nebraska law and similar laws in other states seems to be the basis of the farmers' rebellion. Their complaints that many of the cows which are slaughtered following a positive reaction to the test are found to be without traces of tuberculosis are in line with a series of investigations by Prof. E. G. Hastings and Dr. B. A. Beach, professors of bacteriology and veterinary science at the University of Wisconsin. They reported to the Society of American Bacteriologists at their December, 1924, meeting that in twenty Wisconsin counties in three years, 387,180 cattle were tested, and 5,688 of these gave a positive reaction. Yet, on post mortem examination no evidence of tuberculosis could be found in 1279 of the positive cases. In some of these latter they found a germ very similar to the one which causes tuberculosis, except that it was apparently harmless. Prof. Hastings and Dr. Beach believe that this germ causes cattle to react positively, and is the reason for many of them being needlessly slaughtered.

TUBERCULIN TEST DEFENDED BY GOVERNMENT EXPERT

"Without the aid of tuberculin it would be absolutely impossible to attempt to control tuberculosis in livestock," said Dr. J.A. Kiernan, chief of the tuberculosis eradication division of the U.S. Bureau of Animal Industry, when he was asked whether the accuracy of this method of testing is in doubt. "Before use of tuberculin became general," Dr. Kiernan stated, "physical examination of cattle was depended upon, but it proved futile in freeing herds of the disease.

"The same percentage of accuracy is shown by tests now as was found more than 30 years ago when tuberculin was first used for the purpose of diagnosing tuberculosis in cattle," he continued. "Of more than 20,000 animals that reacted to the tuberculin test during June, 1925,,92 per cent. showed positive lesions of tuberculosis on the ordinary post mortem examination. Many more of those animals would have shown lesions had a more thorough search been made. Furthermore, laboratory examinations of the tissues of the animals that showed no lesions would reveal at least one-fifth of them to be tuberculous. In some of the states where thousands of reacting animals are slamghtered, cases showing no lesions are less than three per cent., thus indicating a very high degree of accuracy for the test.

Dr. Kiernan pointed out that the campaign for eradication of tuberculosis in livestock is going on in every state, and that it is purely voluntary work, carried on under state laws and regulations. No owner is required to submit his herd to the test except in areas where at least 75 per cent. of the other cattle owners have their herds tested.

During the fiscal year 1925, 7,000,000 cattle were tuberculin tested in the United States.

Egypt has bought 131,436 pounds of shoe polish from the United States this year.

WOLF'S COMET DISCOVERED BY GERMAN ASTRONOMER

Wolf's comet, which visits the neighborhood of the earth every eight years, was sighted on Monday, July 13, by J. Stobbe, astronomer at the Bergedorf Observatory near Hamburg, Germany. This information was received by cable from the international bureau at Copenhagen, Dr. Harlow Shapley, director of the Harvard College Observatory has announced.

When observed, the comet was in the constellation of Pegasus, just west of the "Great Square", in right ascension 22 hours, 58 minutes and 12 seconds, and declination 24 degrees, 16 seconds north of the equator. It is slowly moving towards the southeast. As this constellation does not rise at present until late in the evening, and is not directly south until 3;00 a.m., astronomers must either get up early or stay up late to see it. Not many will be able to observe it at present, however, for it is of the 15th magnitude, so faint that only the very largest telescopes are capable of revealing it.

It will become brighter as it gets closer tothe earth, but it is doubtful whether it will become bright enough to be visible to the unaided eye, even in the fall when it reaches perihelionand comes nearest the sun. Previously it approached within 149,000,000 miles of the earth. Since its last visit, however, it passed near Jupiter, a rather rash thing for a comet to do, as it was moved out of its former orbit by the great gravitational attraction of that planet, and now it will not come as close.

BRITISH CANCER DISCOVERY OFFERS NO PRESENT CURE

The success of the British scientists in cultivating, observing, and photographing the organism that causes a malignant cancer in chickens is of great scientific interest, but it will not help any one now ill with cancer, according to Dr. Erwin F. Smith, senior plant pathologist of the U.S. Bureau of Plant Industry, and an authority on cancerous growths in plants and animals.

In a recent visit to London, Dr. Smith visited the laboratory of Dr. J. E. Barnard, one of the three British scientists whose work is creating so much interest. There he saw tubes of clear serum containing the invisible infectious organism. Then he observed the living organism dancing about in a drop of serum under a specially constructed microscope, and also photomicrographs of this germ that is so small that it cannot be seen under the highest powers of any ordinary microscope and that will pass through the pores of filters which will not let through the smallest known bacteria.

"But this organism which causes a malignant tumor in chickens is related only very indirectly to human cancer," says Dr. Smith. "Dr. Petyon Rous, of the Rockefeller Institute, who discovered and studied this chicken tumor in the United States, determined beyond question its malignancy, and also that it could be produced in chickens in the absence of any tumor cells. He took portions of the malignant tumor and killed the cells in various ways, by grinding, by freezing, by drying for months, and with these dead cells he could still produce tumors when they were introduced into susceptible chickens. He found also that the cause of the disease is a filter passer, that it is so smallthat it will pass through the pores of medium Berkefeld filters which will not let through the smallest known bacteria. Nevertheless, this clear filtrate would produce

the disease. Thus, once for all, he settled the question that the cause of cancer may be something separable and independent of the tumor cell, a matter which had been denied for allcancers by many research workers who said that the tumor cell is the only parasite. Dr. Rous was never able to isolate, cultivate, or see the cause of this tumor in spite of prolonged and diligent search.

"What Dr. Gye and his colleague,Dr. Barnard have done is to cultivate this organism through a whole series of tubes, to see it under especially constructed microscopes quite different from the microscopes in ordinary use, and to photograph it.

"The organism is a very peculiar body unlike any ordinary bacteria, and it seems to me problematic where it belongs in the natural classification of organisms. It is like the pleuro-pneumonia germ."

As to the general bearing of this discovery on the whole subject of cancer, Dr. Smith points out that nothing is yet known as to the cause of the human cancer aside from the fact that very frequently, if not always, it appears in irritated places; and if on its first appearance, it is removed by the surgeon, it may never return, whereas, if operation is neglected, the help of the surgeon comes usually too late.

"A few years ago nothing also was known as to the cause of malignant tumors in the lower animals," he continued. "But now we know of three tumors of the lower animals closely associated with parasites. One is a chicken tumor and two are in rats.

"In both of these rat tumors a worm appears tobe the cause of the disease. Rats may be 100 per cent. susceptible to either tumor and no tumor results unless the worms are fed tothe rats.

"There are other experimental cancers apparently due to the application of certain chemical substances to the surface of animals. These are due to tar, arsenic, aniline and similar substances. Such canders occur naturally in men and have beenproduced repeatedly in recent years in experimental animals. Only a portion of the animals become cancerous, although all are irritated by the applications, and not the whole irritated area in every animal becomes cancerous, but only tiny portions of it here and there. The question is raised whether the irritation is the direct cause, or whether it only paves the way for an organism.

"It is possible to conceive that some stimulus might so disarrange the chromosomes or other substances in certain cells so that all their descendants would be abnormal and destructive to other portions of the body. This is one hypothesis. The other is that a parasite must be closely associated with the tumor in all its forms and stages, otherwise the growth comes again under the physiological control of the body."

NEW TIDE GAUGE WILL AID GOVERNMENT SCIENTISTS

Scientists of the United States Coast and Geodetic Survey at Washington are enthusiastic over a new type of gauge for recording movements of the tides, which has just been developed.

"For some time," said Commander G.T.Rude, chief of the division of tides an

currents, "the need has been felt for a tide gauge more portable and more easily installed than the large standard model, for which an elaborate platform is necessary. The new type, which is only 11 by 10 and a half inches on the base and 11 inches high, is expected to fill this need. It will aid us in obtaining tidal observations covering short periods of time."

MANY GOOD SEA FOODS NOW NEGLECTED

Many forms of sea food now considered of scant value have great possibilities, and in view of the depletion of supplies of shad, sturgeon, salmon, lobsters, crabs, and other forms that are now used, the neglected ones may come into importance, according to Lewis Radcliffe, deputy commissioner of fisheries, of the U.S. Department of Commerce.

"An examination of our fishery statistics reveals the absence of some sea foods and a very small catch of others which reach a considerable magnitude in the fisheries of European countries," he says.

"For example, the 1924 landings by fishing vessels in Great Britain include over 6,000,000 pounds of anglers or monk fish, valued at $230,000. Our Atlantic coast fishermen annually throw overboard about 10,000,000 pounds of this fish which has a higher nutritive value than the "sacred" cod. There were also landed in Great Britain 20,000,000 pounds of cockles, valued at $200,000; nearly 23,000,000 pounds of mussels, valued at $130,000; 77,000,000 pounds of sharks, skates and rays valued at $3,657,000, and 5,300,000 pounds of periwinkles and whelks valued at $100,000. The aggregate of the products listed exceeds 65,000 tons. Although in many of our waters, these products abound, the volume used for food is comparatively small and is consumed chiefly by those of foreign birth."

LARGE HEALTHY NEW DEWBERRY INTRODUCED TO PUBLIC

A dewberry that is larger and more resistant to disease than the ordinary berry now grown in gardens has been rediscovered and made available to the public through the efforts of U.S. Department of Agriculture horticulturists. This is the Young dewberry, a new hybrid variety which is wine colored, somewhat darker than the Loganberry, but sweeter than this favorite of the Pacific coast region. The new berry is suited for culture south of the Mason and Dixon line and west of Texas and Arkansas, and it should prove especially satisfactory in the South.

This new fruit owes its origin to B.M. Young, an electrical engineer, who lives in Louisiana. As a hobby he indulged in plant breeding and produced the superior Young dewberry by a hand cross between the Phenomenal and Mayes varieties. The new berry was thus created in 1905. It was not destined to take its place in the world at once, for Mr. Young was so busy in following his profession that his creation was nearly lost when the original plants were destroyed. However, he gave some plants to a friend who moved to Pennsylvania. This friend sent some to the U.S. Department of Agriculture and to a sister living in Alabama and it was in her garden and in the Department's grounds that the superior fruit was rediscovered only two years ago. So important did government officials consider the size and disease-resistant properties of the berry, that they sent George M. Darrow, horticultural expert, to examine all plantings of it. Sufficient stock of the new fruit has been propagated to release the new variety to the public through nurseries. It is believed that there is a possibility that the Young dewberry may even replace the Loganberry on the Pacific coast.

Dewberries and blackberries are very similar fruits and are practically the same botanically. The dewberry is a trailing blackberry, unable to stand erect because of its less woody stem.

SUPPOSED COMET A MINOR PLANET

The Tempel-Swift comet is still far away from the earth, and the object sighted on June 28 by M. Delporte, a European astronomer, and supposed to be the comet, is in reality a tiny planet, Amphitrite, which has been known to astronomers for many years. This statement was made by Dr. Edwin B. Frost, director of the Yerkes Observatory, as a result of photographs made of the object by Dr. George Van Biesbroeck of the observatory staff.

"Delporte probably photographed the moving object while searching for the Tempel-Swift comet," said Dr. Forst. "Later computations which we have received from England, however, indicate that perturbations by Jupiter will delay the return of that comet until next year."

CENSUS SHOWS MANY TYPES OF INSANITY CURABLE

That nearly fourteen out of every hundred patients admitted to hospitals for mental diseases recover, and that more women are cured than men, is shown by an investigation of all hospitals for mental diseases in the United States which the Federal Census Bureau has just completed. The recovery rate for insanity due to drugs was about forty-three for every hundred cases, the highest recovery rate of any type of insanity. Next comes alcoholic insanity with thirty-eight and a half of all cases curable. Women recover twice as often as men do from insanity due to physical injuries, but they should stay away from alcohol, for only thirty women recover from alcoholic insanity to forty men. The most hopeless of all types of insanity is general paralysis or paresis, of which only five out of a thousand recover.

YEAR'S SECOND SOLAR ECLIPSE

The second eclipse of the sun during 1925 occurred July 20-21, but unlike its now historic predecessor last January which was observed by millions of people, those who saw the second one could probably be numbered in the hundreds. Scientists did not travel to see it, for it is what astronomers call an annular eclipse, and scientifically of slight value.

The apparent diameter of the moon, as seen by earth dwellers varies slightly. When nearest the earth, it appears larger, and when an eclipse occurs at such a time, the sun is completely obscured and the eclipse is total. However, when the moon is at its greatest distance from the earth, and then comes between the earth and the sun, that orb is not completely covered, and a brilliant ring of light, called the annulus, is seen around the dark disc of the moon.

The annulus can only be seen over a narrow strip of the earth's surface, which corresponds to the path of totality for a total eclipse. In the recent eclipse this path was about 180 miles wide and extended from a point between Australia and New Zealand across the southern Pacific Ocean, ending several hundred miles west of the southern end of South America. The only land crossed was

the northern tip of New Zealand and a few small islands. A curious feature of this path was that it crossed the International Date Line, where it is Tuesday on the west side and Monday on the east. On this account the eclipse began Tuesday, July 21, and ended Monday, July 20, apparently the day before it started!

As the outer rim of the sun that remains visible is so bright, the corona, the chief feature of a total eclipse, to see which astronomers often travel great distances, was not visible.

ARE WE FISHING THE OCEAN EMPTY?

By Lewis Radcliffe,
Deputy Commissioner, U.S.Bureau of Fisheries.

We have cut down almost all of our forests, and killed almost all of the wild game they once sheltered. We are rapidly exhausting the fertility of our soil, and emptying our mines and oil wells. Will we do the same to the food resources of the sea? Many look upon the sea as a vast untapped storehouse of food. While it is not as barren as it looks, its supplies are by no means inexhaustible as some would have us believe. This has been quite forcefully demonstrated in the fisheries of the North Sea, Iceland and other areas. From 1906 to 1913, the average catch of a British trawler per day's absence from port ranged between 1,837 - 2,027 pounds. As a result of the restrictions on fishing operations during the Great War, the fisheries were afforded an opportunity to recuperate. With the renewal of operations in 1919, the average daily catch increased to 3,483 pounds, or 80 per cent. greater than the pre-war average. In 1921 it had declined to 2,173 pounds, and in 1923 to 1,568 pounds. Thus within a five-year period of fishing, the increment gained during a five-year closed season was wiped out and new low levels reached. The record of British trawlers operating in Iceland waters is similar. The average daily catch per day's absence for the years 1906-1913 ranged within the limits of 4,883 and 5,376 pounds. In 1919, it increased to7,668 pounds, falling to 4,872 pounds in 1923.

The story of Dutch trawlers operating in the North Sea is corroborative. In 1905 the average catch per voyage day was 1,965 pounds; in 1913, 1,738 pounds; in 1918, 5,744 pounds; and in 1923, 1,723 pounds.

As a result of the impoverishment of the nearby fishing banks, the present trend is to build larger fishing vessels, capable of making longer voyages. No less than thirty such vessels are being built at Hull, England. The White Sea is being drawn upon, and several expeditions have been sent to Greenland waters, even as far as Davis strait, to ascertain the abundance of fishes. The great numbers of fishes found in these areas will undoubtedly lead to their exploitation.

African fisheries are also being exploited on a much larger scale than ever before. This depletion of certain areas and expansion of operations emphasizes the need of extensive studies of the life histories and habits of the important marine fishes to prevent their ultimate exhaustion. Fortunately the nations are beginning to realize the importance of such work and to expand their program of scientific research.

HOME ECONOMIC EXPERTS TO DISCUSS PROBLEM

Problems of scientific home making, ranging from "the use of fat in the human body" to "the home maker and the delinquent" will be discussed at the annual meeting of the American Home Economics Association, to be held in San Francisco August 1 to 6. One general session will be given over to the relation of home economics to changing social ideals and practices. More than 1,000 persons are expected to attend.

AMERICAN CHILDREN CLAIMED MORE INTELLIGENT THAN CHINESE

Intelligence tests recently conducted in San Francisco public schools show American children to be superior to Chinese children in the matter of intelligence, says Virginia T. Graham in her report of the tests to appear in The Journal of Comparative Psychology.

The Chinese childrenused as subjects for the tests were all pupils of the Oriental School of San Francisco, a public school exclusively for Chinese. Only about one fifth of the children tested were born in China, but all were of Chinese parentage and came from Chinese speaking homes. The majority were Cantonese.

The subjects were all twelve years old and as practically all of the twelve year old children in the school were tested, the group was reasonably representative.

Several different types of standard mental tests were used, and in so far as possible tests were selected which would not likely be affected by the difference in language. These same tests had been given previously to a group of American children and the results recorded.

WHAT THE HEAVENS OFFER IN AUGUST

"NORTHERN CROSS" NOW PROMINENT IN EVENING

by James Stokley,
(Science Service Staff Writer)

About nine o'clock in the evening, when it is clear, look at the eastern sky, near the zenith, and you will see the constellation of Cygnus, the Swan, better known, perhaps, as the "Northern Cross". Residents of the southern hemisphere are justly proud of their famous "Southern Cross", and greatly resent any aspersions cast on it, but of the two, the Northern Cross is the more perfect. The southern consists of brighter stars, but unlike ours, has no star at the intersection of the upright and the arms. The northern one, as we see it this month, is on its side. The upright consists of three bright stars and a fainter one, which are in a row running almost north and south. At the northern end is Deneb, while the southern one is Albireo; but astronomers scorn these ancient though picturesque names, and call them alpha and beta Cygni, after the usual system, by which the stars of a constellation are called by Greek letters in order of their brightness. The cross-piece runs from east to west, and just

below it is another star which belongs to the constellation proper, but not to the cross. The longer part of the upright forms the Swan's neck, the shorter, its tail, and the cross-piece its wings.

But the bright stars are not only in Cygnus. Almost overhead is Vega, in the constellation of Lyra, the Lyre, which contains no other very bright stars. Southwest of this is Altair, in the Eagle, or Aquila. The three stars, Altair, Vega and Deneb form a huge triangle which has no name, but is helpful as a "landmark", possibly I should say "skymark", in identifying other stars of the summer sky.

Imagine a straight line passed through Altair and Vega, and extending to the west to a distance about equal tothat between the stars, and you will be able to find the constellation of Bootes, the Bear Driver. This appears in the shape of a kite, at the lower, or western, end of which is the bright star Arcturus. A continuation of the line from Deneb to Vega and about three times the distance between them passes to the west of a bright reddish star. Antares, in Scorpio, or the Scorpion. Eastward from Antares, and parallel to the horizon, is the Scorpion's tail, with a very natural curve on the end of it. This is one of the few constellations that show any considerable resemblance to the objects which they are supposed to represent.

The Big Dipper, probably the best known group of stars in the sky, is now in the northwest, the dipper being in the positionit would occupy if hung by the handle, the pointers, which point to the north star, being at the end of the bowl farthest from the handle. On the eastern side of the pole star is Cassiopeia, in the shape of a great W, and supposed to represent a lady seated on a chair.

Several of the most interesting planets are now in fine position for viewing, the most conspicuous being Jupiter, which blazes in the southeast. There is nodoubt in recognizing it, as it is the brightest object in the sky at nine o'clock, although just after sunset Venus appears brilliant, low in the west.

The most interesting feature of Jupiter is the system of moons, or satellites that it sports. Instead of one, like the earth, or two, like Mars, Jupiter has nine. These are not visible to the unaided eye, and some of them are only perceived with the most powerful telescopes, but the four brightest ones, which Galileo discovered in 1610, can be detected with a good pair of binoculars.

It is a matter of surprise tomany people when they learn what can be seen with even slight optical aid. Galileo's telescope was not as good as most modern opera glasses, yet he made discoveries with it that rank among the greatest in the history of astronomy. While there is not much hope of making any startling discoveries with them, a good pair of binoculars will reveal many interesting sights in the heavens, including the craters on the moon. The important thing to remember is to provide some steady support for the glasses, as the slight vibration when they are held in even the steadiest hands prevents seeing fine details.

Saturn is in the west, southwest of Arcturus, and appears as a bright star, though not as bright as Jupiter, as it is much farther away from us. The system of rings, which make Saturn unique, are now in a good position for seeing, but a telescope magnifying at least thirty diameters is needed to reveal them.

An interesting spectacle, although not of any scientific value, will occur on August 29, about seven o'clock in the evening, Eastern Standard Time, when the moon and Jupiter are in conjunction. The moon will be in a gibbous phase, a few days after first quarter, and in the southeastern sky. A short distance below it, and equal to about four times its diameter will be the planet Jupiter. With a pair of binoculars these can both be seen in the same field, and to see the lunar mountains and Jupiter's moons at the same time will be a novel experience.

TABLOID BOOK REVIEW

A MANUAL OF STYLE, WITH SPECIMENS OF TYPE. By the University of Chicago Press. Chicago, 1925. 391 pages, $3.00

Including the nine introductory pages of title, table of contents, and so on, this book contains an even four hundred pages. At three dollars, that makes it exactly three-quarters of a cent a page. And for the person who writes, whether for profit or for pleasure (with more or less hope of eventual profit), no better bargain can be found. The careful and long-experienced editors of the University of Chicago Press, with aid from veteran copy and proof readers too, no doubt, have thought of every possible mistake an author can make, from the first rough-draft to the kind of type in the "blurb" on the cover-jacket, and have diligently prepared antidotes. If taken in time and according to directions, immunity against headaches, heartaches and loss of money is guaranteed. This is the eighth edition of the book since 1906, which should be recommendation enough in itself.

THE PLEISTOCENE OF THE MIDDLE REGION OF NORTH AMERICA AND ITS VERTEBRATED ANIMALS. By Oliver P. Hay, Washington: The Carnegie Institution of Washington. Publication 322 A. 385 pages, 1924.

This volume needs no more recommendation than the simple statement that it is in existence. It is, of course, limited in its usefulness to geologists and paleontologists interested in recent history; but to these it is simply indispensable.

On his silver wedding anniversary, May 10, the Emperor of Japan presented lacquered drinking bowls to nearly 20,000 persons who were over 90 years of age.

The amount of clay dug up and sold in the United States last year was 3,676,720 short tons, of which two thirds was fire clay and less than one tenth kaolin.

The number of first admissions to hospitals for mental disease in the United States annually is practically equal to the number of persons graduated from colleges and universities in a year.

Among the famous men who have lived to a good old age are: Michael Angelo, 89 years; Voltaire, 84; Tennyson, 83; Gladstone, 89; Victor Hugo, 83; Goethe, 83; Titian, 99; Herbert Spencer, 83.